

Converting coal-fired power plants to wood biomass is not a climate friendly option as wood is less efficient at the point of combustion and the emissions from its processing and the supply chain are actually higher than these for coal, a new study says.

In fact, according to a team of researchers at the Massachusetts Institute of Technology, Climate Interactive and UMass Lowell, switching to wood from coal in power generation results in higher carbon dioxide emissions, “worsening climate change until—and only if—the harvested forests regrow.”

With the conversion of major power generators to biomass, such as Drax Group Plc’s power plant in North Yorkshire, England, demand for pellets is growing. EU wood pellet imports mainly come from US forests, which grow back slowly. In the central and eastern US the payback time for that carbon debt is between 44 and 104 years, depending on forest type, and, most of importantly, assuming the land remains forest. The carbon debt is never repaid if the land is developed, or converted to agricultural use.

“It’s like an investment in which you give your bank \$1,000 today. They promise to pay you back, but only over 80 years, and only if they don’t go out of business first or decide there’s something else they’d rather spend your money on. You’re better off if you keep your money. In the same way, it’s better to keep the trees on the land and keep all that carbon out of the atmosphere,” said John Sterman, the Jay W. Forrester Professor of Management at MIT Sloan School of Management.

Replacing hardwood forests with faster-growing loblolly pine plantations is not a solution as managed plantations do not sequester as much carbon as natural forests.

“A molecule of CO₂ emitted today has the same impact on the climate whether it comes from coal or biomass. Declaring that biofuels are carbon neutral, as the EU, UK and others have done, erroneously assumes forest regrowth happens quickly and fully offsets the emissions from biofuel production and combustion,” Sterman adds.

The researchers note that energy efficiency, solar and wind power, and energy storage are “the cheapest, safest, and quickest ways to cut greenhouse gas emissions” and point out that the goal of the analysis is not to defend the continued use of coal — the most carbon intensive fuel.

The research was conducted with the use of a system dynamics model, based on the Climate Rapid Overview and Decision Support simulator.

Earlier this week Drax said that the UK government response to a consultation on controlling subsidies for biomass conversions will allow it to convert a fourth unit to biomass. The Drax Power Station has six turbines, each capable of producing 645 MW. Following the consultation, which was launched in September 2017 and completed in

October 2017, the government proposed that, rather than setting a cap on support under the Renewables Obligation scheme for any new biomass unit conversions, a cap would be imposed across all RO-supported units at a power station.

Source: renewablesnow